- Vital Statistics Registered at Sea
- Childbirth
- Death at Sea

Chapter IX

Birth and Death at Sea

REGISTRATION OF DEATHS, MARRIAGES, AND BIRTHS AT SEA

Logbook Entries

Every vessel bound on any foreign voyage, or of the burden of 75 tons or greater on any intercoastal voyage, shall have an official logbook. The Master of such vessel shall make entries in the logbook on such matters as provided for in Title 46 United States Code, Section 201, which includes, among other matters, the particulars regarding death, marriage, and birth.

Reports Required of Vessels Inbound to the United States from a Foreign Voyage

Immigration and Naturalization Service regulations require that the fact of death, marriage, or birth of an individual in the course of the voyage be entered in the passenger manifest or crew list which is turned over to that Service on port entry.

The laws of many States or cities of the United States require or permit the Master of an inbound vessel to file with the appropriate civil authorities a certificate of death, marriage, or birth for each such event occurring on a voyage when the first port of entry is a U.S. port. Because requirements of law and forms vary from port to port, it may be necessary to seek assistance from the *local civil authorities*.

Reports to United States Consular Offices by Vessels Bound on any Foreign Voyage

The death, marriage, or birth of a U.S. citizen aboard any vessel on a foreign voyage is reported to the U.S. consular officer at the first port where such officer is available, after the occurrence of such event. These reports are subsequently forwarded to the U.S. Department of State by the consular officers where certified copies of their contents are made available upon request. This procedure has been followed for years as a service to U.S. citizens, although no statute requires that it be followed.

Report Required to the United States Coast Guard

Whenever there is a loss of life on any merchant vessel, whether in foreign-going or domestic service, the Master, agent, or person in charge shall, as soon as possible, give notice to the nearest marine inspection office of the Coast Guard. When the deceased is a seaman, the Master shall within 48 hours after arrival at his port of destination in the United States give an account of moneys, clothes, and effects to the Coast Guard official to whom the duties of shipping commissioner have been delegated, in accordance with the provisions contained in Title 46, United States Code, Sections 621, 622, 623, 624, 625, 626, 627, 628, and 706.

CHILDBIRTH

Introduction

Occasionally, a person without medical or nursing education has to deliver a baby on board ship. A baby normally is born without any manipulation. The attendant should receive the baby, tie and cut the cord, receive the placenta (afterbirth), and provide proper care for the mother and baby following delivery. A very important function is to reassure the mother and make her feel that there is someone close at hand upon whom she can rely. This feeling of confidence by the mother will increase in proportion to the calmness and efficiency that the attendant exhibits.

When confronted with a woman in labor, the attendant should be able to evaluate the mother properly and if delivery is imminent, prepare to assist her in giving birth. If possible, the mother should be transported to a hospital where a well trained staff is available with the appropriate equipment, supplies, and drugs.

In order to decide whether or not to transport the mother to the hospital, certain information should be obtained by questioning and examination. Ask the mother:

- How many children she has delivered previously?
- How long she has been in labor?
- Whether the "bag of waters" has broken?
- If she feels as though she has to strain to move her bowels?

Also:

- Examine the mother for *crowning* (top of the baby's head appears).
- Determine if time is available to evacuate her to the nearest hospital.

The average time of labor for the mother of a first child is 15 hours, but labor is considerably shorter for subsequent babies. Thus, if the mother says that she is having her first baby and that she has not been in labor long, there may be time to transport her to a hospital. However, the decision should not be based on this information alone without finishing the evaluation.

The mother's indication that she feels she must strain or move her bowels means that the baby has moved from the uterus into the birth canal, a reliable sign that birth is imminent. This sensation is caused by the baby pressing the wall of the vagina against the rectum.

The attendant also should examine the vaginal opening for crowning before making a final decision about transporting the patient. This procedure may be embarrassing to the mother and it is important that the attendant fully explain what is being done and why. Every effort should be made to protect the mother from embarrassment during both the examination and delivery.

In many cases a hasty decision to transport the mother means that the delivery could take place in a helicopter or ambulance, under the worst possible circumstances. Therefore, it is very important to weigh this information before deciding to evacuate the mother from the ship.

As the mother's contractions increase in intensity and frequency, she may become restless, moan, and cry out. As labor progresses, the contractions will cause the mother to "bear down," as she would if straining to have a bowel movement. She should be encouraged to relax and rest between contractions.

To give intelligent assistance to the woman in labor, the attendant should know something about what is happening to the body as labor progresses, as well as the symptoms which will occur.

Stages of Labor

Labor, which is the process of childbirth, consists of contractions of the wall of the uterus (womb). These contractions force the expulsion of the baby into the outside world. (See Fig. 9–1.) Labor is divided into three general stages. *The first stage* usually lasts several hours (up to 18 hours or more for a first baby), from the first contraction to full dilation of the cervix. The small opening at the lower end of the uterus (the cervix) gradually stretches until it is large enough to let the baby pass through. The contractions usually begin as an acutely aching sensation in the small of the back; in a short time, they turn into cramplike pains recurring regularly in the lower abdomen. At first, these

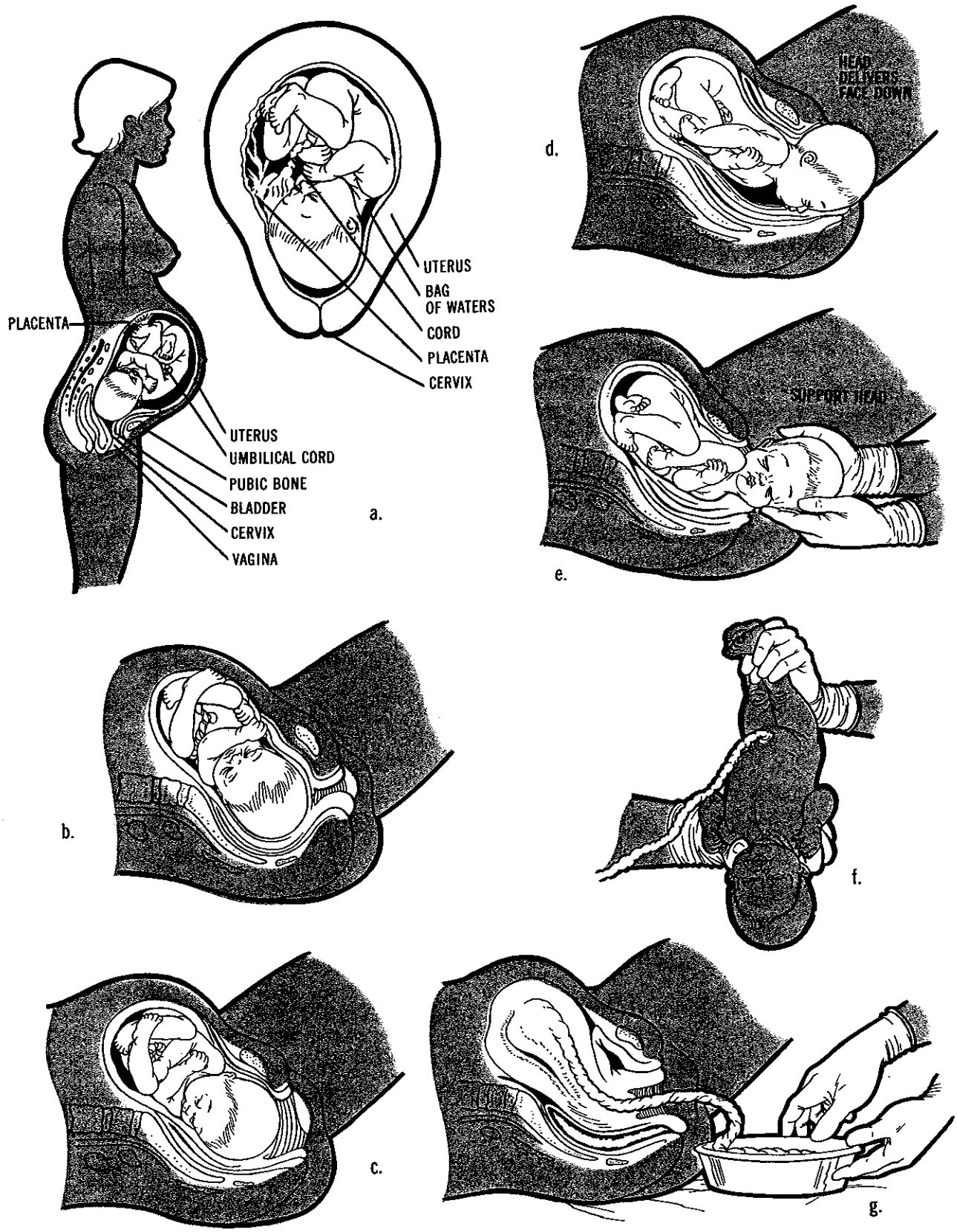

Fig. 9–1. Anatomy of pregnancy and normal stages in labor.

contractions are from 10 to 15 minutes apart, are not very severe, and last but a few moments. Gradually, the intervals between contractions grow shorter and they increase in intensity. A slight, watery, bloodstained discharge from the vagina may accompany contractions or occur before the labor begins.

At the end of the *first stage* of labor, the "bag of waters" (amniotic sac), which encases the baby in the uterus, breaks. A pint or more of watery fluid discharges. Sometimes the "bag of waters" breaks during the first stage of labor. This should not cause the attendant any concern, because it usually does not affect labor. If the "bag of waters" breaks prematurely and labor does not begin within 12 hours, the danger of infection to mother and baby is potentially great. Seek medical advice by radio about possible evacuation of the mother.

The *second stage* lasts about 30 minutes to two hours or more. It begins when the neck of the cervix is fully open, and it ends with the actual birth of the baby.

During the *third stage,* lasting about 15 minutes or more, the afterbirth (placenta) is expelled.

Preparing the Patient

As soon as labor begins, if the birth does not seem to be imminent, the patient should be given an enema, unless she is able to administer it herself. The enema should be expelled into a bedpan rather than a commode. She should take a shower or sponge bath, unless the birth seems imminent. She should be advised to use a heavy lather to clean the inner sides of the thighs and the rectal area, during which she must be careful to prevent soap or water from entering the vagina. After the sponge bath or shower she should put on clean clothing.

The patient should urinate frequently during labor to keep the bladder as empty as possible at the time of the delivery of the baby. As labor progresses, her diet should be restricted to soft, easily digested foods and liquids. She need not get into bed until the contractions occur at intervals of about five minutes. In fact, she ought to remain up and active during the early stages of labor, unless the rolling of the ship makes this dangerous.

At the onset of the first contractions, usually there is plenty of time to get ready for the delivery. The expectant mother should be asked to tell the attendant when contractions first start, so that all preparations for the birth can be completed.

An assistant should be chosen from among the crew or passengers. If possible, this should be someone who has had previous experience with childbirth, or with medical affairs in general. Also, one or two other crew members or passengers (preferably women) should be asked to stand-by to assist. They should be shown how to maintain supplies of clean towels and linen, and instructed how to care for the newborn baby.

Beds for Mother and Baby

For the delivery, a single bed or a bunk with an open foot should be used. The bed should be made up as follows: Place a wide board under the mattress to keep it from sagging. Cover the mattress with a rubber sheet or piece of canvas about three or four feet square, and spread a cloth sheet over this. Draw both sheets tight, and tuck them under the mattress. A pad, made of a folded sheet, should be placed under the woman's buttocks and upper thighs. Then the bed should be made up in the usual way. If the room has been properly warmed, no covering other than the top sheet will be required.

The Baby's Bed

A satisfactory bed can be improvised by building a box about the size of an ordinary pillow and 8 to 12 inches high. A pillow placed in the box can serve as a mattress. If in a temperate climate, wrap a hot water bottle in the baby's blanket and put it into the bed to warm both bed and blanket. The hot water bottle must be removed before the baby is placed into the bed.

Supplies and Equipment

The supplies and equipment that should be assembled are as follows:

- A dozen freshly laundered towels.
- Four pieces of 1-inch wide sterile gauze bandage, about 9 inches long, to be used in tying the baby's cord. Usually only two are used; the other two are extra.

- Sterile gauze dressings, 4 inches square, to wrap around the stump of the cord.
- Sterile scissors for cutting the cord. If sterile scissors are not available, scissors can be cleaned with soap and water and boiled for five minutes in a clean container.
- A dropper bottle of polymyxin B-neomycin-gramicidin eye drops.
- A soft warm blanket to wrap around the baby.
- A basin with a cover to receive the placenta.
- Sterile gloves.
- Sterile or clean gown.
- Rubbing alcohol (isopropyl alcohol, 70% or equivalent) for the cord dressing.
- A roll of 3-inch gauze bandage.
- A sanitary belt.
- Sanitary pads (uncontaminated) from an unopened package, to catch the vaginal discharge, which will continue for several weeks after delivery.

If the patient does not have an unopened package of sanitary pads, cut sterile cotton into pads 10 inches long, 4 inches wide, and 1 inch thick, using sterile scissors. Work on a surface covered with a freshly laundered towel and use a sterile forceps to handle the cotton and gauze. Then cut sterile gauze or freshly ironed cloth into pieces large enough to wrap around each pad and leave two or three inches at each end. Grasp the ends when doing the wrapping. The padded part should not be touched. The towel should be folded over the pads for storage until they are used.

Delivery of Baby and Placenta

When the labor contractions occur regularly every five minutes, the patient should get into bed. *No anesthetic or sedative of any kind should be given to relieve the discomfort without medical advice by radio.*

The attendant should lay out the supplies in a convenient place ready for use. Then the attendant's hands should be scrubbed thoroughly with soap and water.

Because of the danger of introducing infection into the vagina, one never should attempt to clean or disinfect the area between the patient's thighs or around the openings of the vagina, either before or after delivery. Any gross contamination such as feces should be wiped away. However, care must be taken not to introduce any additional bacteria into the vagina. The patient should remain covered with a sheet until just before the baby is born.

It is important to keep calm. It should be remembered that most babies are born without undue difficulty. If there is any marked divergence from the following description of the baby's birth, or if for any reason there seems to be cause for alarm, *medical advice by radio should be sought.*

The "bag of waters" probably will break shortly before the child is born; this may go unnoticed, or a pint or more of clear or blood-stained fluid may come from the vagina.

At this time, the attendant should scrub his hands thoroughly, open the sterile supplies, put on a clean surgical gown and sterile gloves. (See p. VII–18+.)

The patient should lie on her back with her knees bent and spread apart. If possible, the bed should be well lighted. Normally, the baby's head comes out first, with the face downward. The attendant should place one hand under the baby's forehead and have the other ready to receive the body. As soon as the head is born, the body and limbs usually follow quickly.

If the umbilical cord is wrapped around the neck when the head and neck appear during delivery, try to slip the cord over the baby's head so that it will not be strangled. (See Fig. 9–2.) If this cannot be done, tie the cord in

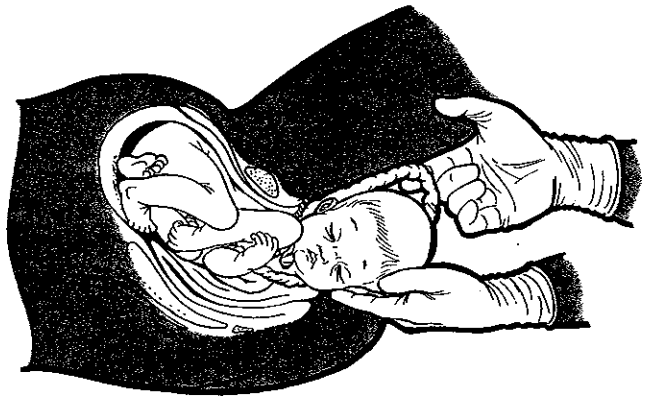

Fig. 9–2. Umbilical cord wrapped around baby's neck.

two places, two inches apart, and cut between the ties. Then, unwind the cord from around the baby's neck.

After the baby is born, a fold of towel should be wrapped around its ankles to prevent slipping. With one hand the baby should be held up by the heels, taking care that the umbilical cord is slack. To get a good grip, insert one finger between the baby's ankles. *Don't spank the baby.* If breathing does not start spontaneously, snap the forefinger of your hand on the sole of the baby's foot. The baby will be very slippery, and should be held over the bed in case it slips from the attendant's grasp. The attendant's other hand should be placed under the baby's forehead with its head bent back slightly, so that fluid and mucus can run out of its mouth. A small rubber ear syringe may be used to remove excess mucus from the mouth, if necessary. Remember—always squeeze the bulb before inserting the tip of the syringe into the baby's nose or mouth, and gently release the bulb to remove the mucus. When the baby begins to cry, lay it on its side on the bed close enough to its mother to keep the cord slack. Note the time of delivery. Later, in the patient's record and the official ship's logbook, record the date, time of delivery, the baby's sex, and the names of the parents.

Tie a strip of sterile gauze around the cord about three inches from the baby's body, and another piece of sterile gauze tied about two inches farther along toward the mother. Do not use any material so thin that it will cut through the cord when tightened. Make square knots and *be sure the ties are tight.* Using sterile scissors, cut the cord between the two knots. (See Fig. 9–3.)

A pad of sterile gauze, moistened with rubbing alcohol, should be placed under and over the stump. Shortly after cutting the cord, examine the cut end attached to the baby for signs of continued bleeding. If there is evidence of bleeding from the cord, do not attempt to adjust or tighten the existing knot or clamp. Tie or clamp the cord again a short distance from the original closure. It is very important that the cord be closed off completely. The baby should be wrapped in a warmed blanket and placed on its left side in its bed where an assistant can watch it. The baby should be observed carefully during the first 24 hours.

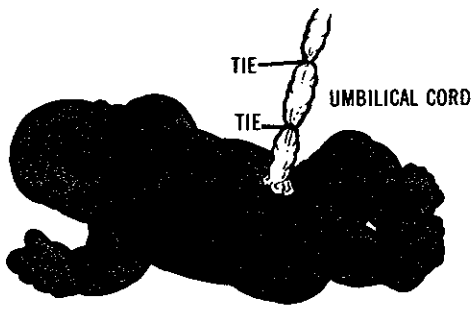

Fig. 9–3. Tying and cutting the umbilical cord.

The Placenta

Continue to observe the mother. Contractions usually stop after the birth of the baby, but will begin again to expel the placenta. This usually occurs in 15 to 30 minutes, and is accompanied by a gush of blood. *Do not pull on the cord.* When the placenta is delivered, it should be wrapped in a towel, placed in a plastic bag and refrigerated until transported with the mother and baby to the hospital. The physician will want to examine the placenta for completeness because any portion of the placenta that was not delivered must be removed. Any tissue remaining in the mother's uterus could cause prolonged, excessive bleeding. *If excessive bleeding occurs, seek medical advice by radio.* Ergonovine by injection may be required (see p. VI–49).

Care of Mother After Delivery

After the placenta has been delivered, the attendant's hand should be placed on the mother's abdomen, just below the navel. The contracted uterus feels like a hard lump about as big as a grapefruit. If a hard lump is not felt, the abdomen should be massaged firmly and gently until one forms under the hand. Gentle massage will stimulate a relaxed uterus, causing it to contract. If the uterus does not contract, there is danger of hemorrhaging. Therefore, the uterus should be felt every 15 minutes for hardness to assure that it is contracted. *If the uterus does not become hard, continue the massage and seek medical advice by radio.*

The mother's blood pressure should be taken every 15 minutes after delivery for two

hours, or until stabilized. When one knows that the uterus has contracted, the patient's thighs and buttocks should be bathed with soap and water and dried. *Do not bathe the area between the thighs or around the vagina.* A sanitary pad should be applied, the soiled pad and towels removed, and the bunk made up with fresh linen.

The attendant should not try to suture any lacerations in the vaginal opening. The mother should lie on her back with a pillow beneath her knees, and her legs together. She may have a slight chill, so she should be kept warm with blankets. A warm (not hot) drink of sweetened tea, milk, or boullion may be given to her, and her face and hands wiped with a damp towel. She may drop off to sleep. If she remains awake and is restless due to pain, codeine sulfate 30 mg and aspirin 600 mg may be administered by mouth. If aspirin is not well tolerated by the patient, acetaminophen may be given at the same dosage and frequency, along with the codeine sulfate. This dosage may be repeated for discomfort, every four hours for the first 24 to 48 hours after delivery. *The medication should not be continued for more than 48 hours without advice from a physician.*

The mother's diet after delivery may include all foods, except onions and cabbage. She should be encouraged to drink plenty of fluids, particularly milk. If fresh milk is not available, canned milk can be made more palatable by diluting it with equal parts of water, and adding sugar, eggs, chocolate, or other flavoring.

The mother's elimination of wastes should be checked carefully. If her bowels have not moved within three days after delivery, an enema should be given. The enema should be repeated every other day, if the bowels do not move naturally. Her output of urine should be measured carefully and should be at least 1500 ml during the first 24 hours. After each voiding, the perineal area should be cleansed with warm water poured from a sterile container. A sufficient fluid intake must be maintained to assure an adequate output of urine.

The mother's bed should be made up with clean linen daily. Every morning she should be provided with the necessary articles for mouth care and for a sponge bath.

Normally, the mother should rest and be restricted to limited activities for three days following the birth. If her temperature rises above 100°F (37.7°C) for more than 12 hours, an initial dose of penicillin V 500 mg should be given by mouth followed by 250 mg every six hours. If the patient is suspected of being allergic to penicillin, use oral erythromycin in the same dosage and frequency. The patient should be kept on the antibiotic until at least four days after she becomes afebrile (without fever). *If fever persists, seek medical advice by radio.*

Care of Baby After Delivery

Within 30 minutes after the baby is born, two drops of polymyxin B-neomycin-gramicidin eye drops must be placed in each eye to prevent infection, in case any bacteria have entered the eyes during birth.

The baby should be observed every half hour for the first three hours and then every hour for the next 24 hours. Skin color and breathing rate should be noted.

A fresh alcohol dressing should be applied to the stump of the umbilical cord each time it becomes soiled. This may have to be done several times daily. The stump will fall off within seven to ten days. The small area remaining should be redressed until it is healed.

Resuscitating the Newborn Baby

If the baby is not breathing spontaneously within 30 seconds after delivery (about the time it takes to clear the blood and mucus from his nose and mouth), or if he is born limp and apparently lifeless, resuscitative measures must be initiated without delay. The following procedure should be used.

Again, quickly suction the infant's mouth and nose to assure that there is no blockage due to blood or mucus. Replace the baby on its side, with the head lower than the body. Grasp the baby's feet between the second, third, and fourth fingers of one hand, and snap the forefinger of your other hand sharply against the soles of its feet. This stimulation should cause the infant to gasp and breathe, and perhaps to cry lustily. If not, go on to the next step.

Begin mouth-to-mouth resuscitation. (See p. IV–1.) Quickly blow several small puffs of air from your cheeks into the baby's mouth and nose, and then check for signs of breathing. If the baby has started to breathe spontaneously at this point, administer oxygen until it is pink and breathing well. Do not place the oxygen mask directly over the face; instead, hold it in front of the child's face a slight distance away.

If mouth-to-mouth efforts are still unsuccesful after two minutes, and if at that time you cannot locate a pulse, start cardiopulmonary resuscitation. (See p. IV–1.) Remember to use only one or two fingers on the sternum and to apply very little pressure. *Caution: Mechanical resuscitation devices never should be used on a newborn infant.*

Feeding the Newborn Baby

The baby should be put to the mother's breast twice the first day and every three hours thereafter, even though the milk does not come into the breast for two or three days. Until the mother has milk, the baby should be given about one ounce of boiled water every two or three hours. The water should be about body temperature. It may be given from a medicine dropper or teaspoon which has been sterilized by boiling; or from a sterile baby bottle with nipple, if available.

Abnormal Conditions of Pregnancy

The majority of births are normal and uncomplicated and pose no particular threat to either the mother or baby. There are, however, numerous complications that can occur. Some of these can be alleviated by the attendant but others require the skill of trained professionals in a hospital with the necessary equipment and supplies.

If a woman goes into labor at sea, medical advice by radio should be sought as soon as possible, instead of waiting until the delivery actually begins.

This book does not provide information on all possible complications of pregnancy and delivery because the possibility of delivering a baby aboard ship at sea is slight. Also, there are possible complications that would require immediate care by a physician. The following complications are examples of some of the abnormal conditions that might occur. The use of the radio to obtain medical advice provides the best approach in dealing with these problems:

- Vaginal bleeding at anytime during the last three months of pregnancy usually constitutes an emergency. The mother should be placed in bed and taken to port as soon as possible for evaluation by a physician. The mother also should be placed in bed if vaginal bleeding occurs during the first trimester of pregnancy.

- Rupture of the "bag of waters" without labor and with no labor within 12 hours also is considered an emergency. The danger of infection to mother and baby is potentially great. *Seek medical advice by radio.*

- The breech presentation is the most common of abnormal deliveries. This is when the buttocks is delivered first rather than the head-first presentation as in a normal delivery. In a breech presentation, the same procedures should be followed as in a normal delivery. Let the baby deliver with as little interference as possible.

- A prolapsed umbilical cord occurs when the cord comes out of the vagina before the baby is born. Because the cord is already in the birth canal and the uterine contractions are pushing the baby into the canal, the cord will be squeezed between the baby's head and the wall of the vagina and the underlying pelvic structure. Because the baby still is dependent on the blood circulating through the cord for its oxygen supply, the danger of suffocation develops very quickly. Without facilities to perform an emergency Caesarian section, there is virtually nothing that can be done to save the baby. The delivery should be handled in the usual manner.

Baptizing a Newborn Baby

A baby born at sea might exhibit signs that it is not going to survive. In such circumstances attendees at the birth or the Master should ask the mother if she wants the child baptized in conformance with her religious beliefs. If the mother is not conscious, the Master should use his own discretion on the matter.

Nothing is quite so sad as a baby born dead or dying shortly after birth. It is a tragic moment for all concerned—the parents, who have waited so long for their child, and the attendants, who have shared the experience of childbirth.

A simple act of kindness may provide the distraught parents with spiritual comfort. When a baby is stillborn or death appears imminent, any person regardless of religious belief, may baptize the newborn of Christian parents. The attendant should sprinkle drops of water on the baby's bare skin, preferably the head, and say, *I baptize thee in the name of the Father, and of the Son, and of the Holy Spirit.* This exact form should be used. Naturally, resuscitation efforts should be continued during and after the baptism.

Emergency Baptism of Fetus or Embryo

A miscarried fetus or embryo, no matter how small, also can be baptized. Putrefaction or advanced general decomposition is the only certain sign of real death. Break the membranes or open the blood clot surrounding the embryo. Immerse it in a pan of water making sure the water contacts the fetus itself. Then, while moving it about in the water so that there will be a washing or flowing or "baptizing," say the words of conditional baptism: *"If you are capable, I baptize you in the name of the Father, and of the Son, and of the Holy Spirit."* Finally, remove it from the water. The fetus should be immersed in a preservative within a container that has a tight-fitting lid, for examination upon arrival at the first port.

DEATH AT SEA

Because cargo ships usually do not have a physician or lawyer aboard, the Master must assume certain responsibilities concerned with death. These include taking the dying declaration (antemortem statement) of a patient and pronouncing the person dead.

Antemortem Statement

When it appears that a person at sea is about to die, he should be advised that he can make a legally valid statement, if he so desires. The Master, other officer, or crew member may be called upon to record the statement. This is an extremely serious matter, because such a statement may be of vital importance in connection with the cause or circumstances of a person's impending death; the disposition of property, money, or personal effects; or with some incident in his past life. The welfare of many individuals can be influenced by the statement. For instance, a statement may affect the well-being and future security of the patient's family; or the liberty of a person who might be accused of causing the patient's death and thus be subject possibly to criminal prosecution. Whoever receives the declaration must make very effort to understand clearly and completely what is said, *and to take it down in writing—exactly as given.* The recorder must ascertain the patient's attitude, and determine to the best of his ability that the patient is in his right mind, is thinking clearly, rationally, and is fully conscious.

The importance of any statement a patient is about to make should be fully explained to him. The statement must be voluntary; that is, no coercion, threat, or force can be used to obtain it. The statement should be written exactly in the patient's own words without any deletions, additions, or changes. Extraordinary care should be taken not to attempt to interpret what the patient might seem to mean, but to confine the statement to the exact words as spoken by the patient.

The written statement should be read back to the patient. Every effort should be made to obtain his signature on the statement, together with signatures of the witnesses. Any writing intended to serve as the patient's last will and testament *should be signed by him and by three witnesses, whenever possible.*

If a statement made by a dying person cannot be recorded verbatim, the person to whom it is made should make adequate notes at the earliest opportunity, so that he may be able to refresh his memory on the contents of such statement, if he is required to testify in court at a later date. Any declarations, exclamations, acts, or gestures of the dying person, which might in any way indicate his intentions or desires, should be noted and described in writing. It should be remembered that the legal competency or admissibility of a dying person's

statement (written or oral) will be affected by the character of the statement, the circumstances under which it is made, the type of proceeding (civil, criminal, or probate) to occur, and the laws of the particular court (Federal, State, or foreign) in which it might be desired to introduce such statement in evidence. Attendants and others concerned should be careful, thorough, and accurate whenever they must record statements of a dying person.

Signs of Death

A merchant marine officer may have to declare a person dead. This is a heavy responsibility. Ship's officers should be equipped with a working knowledge of how to recognize death. The signs of death may be divided into two classes, depending upon whether they arise *shortly after death* or *some time later.*

Early signs of death are absence of heartbeat and breathing for at least 20 minutes. It is difficult for a layman without skill in the use of diagnostic instruments to determine with certainty when the heart stops beating. Besides feeling for the pulse, the heart sounds should be sought by listening with an ear or stethoscope applied directly to the chest, just to the left of the breastbone.

The following is considered a time-honored test, if breathing is not superficially apparent: obtain a clean mirror, make sure it is cooler than body temperature, and hold it before the patient's mouth and nostrils. If the patient is breathing, even shallowly, the mirror will fog; that is, moisture from the breath will condense on its cool surface. If a polished mirror is not available, a wisp of cotton placed on the slightly opened lips of the patient, or before a nostril opening should indicate any air current, if there is life and breathing.

It never should be forgotten that a person may appear to be dead when he still is alive. *Death* is the cessation of life beyond the possibility of resuscitation. *Suspended animation (or death trance),* which imitates death, is total unconsciousness with scarcely any respiration, heartbeat, or other obvious sign of life. Suspended animation may occur as a part of such things as neuropsychiatric disorders (hysteria for instance), debilitating disease, submersion, gas poisoning, electric shock, or any major injury followed by shock, whether or not there are large wounds or massive hemorrhage or extensive tissue damage. Breathing may be so shallow that it cannot be distinguished by ordinary methods; or breathing may stop before the heart stops beating. Heart sounds may be so faint that they cannot be heard by ordinary means. The pulse may be so feeble that it cannot be detected by touch. The pupils of the eyes may be dilated and fail to react to light. The eyelids may be half-closed and the cornea (the transparent covering of the front of the eyeball) insensitive to touch.

Therefore, if the circumstances suggest suspended animation, resuscitation efforts should not be stopped until the fact of death is definitely established—although one or more of the early signs of apparent death are present. Unless the patient unquestionably is dead, time should not be wasted in looking for the early, minute signs of death. Instead, every effort should be centered on resuscitation.

In most cases, death is unmistakable when it occurs. It will not be necessary to wait for the later signs to confirm death. Nevertheless, the body rarely, if ever, is buried at sea before the late signs of death have occurred. From a medicolegal and other points of view, the record of the case should include a description of those later signs of death that were observed. *The later conclusive signs of death include:*

• *Changes in the appearance of the eye*—The cornea loses its transparency, turns milky or cloudy, and becomes wrinkled.

• *Drop in body temperature*—In doubtful cases, a clinical thermometer should be placed in the rectum. Occasionally, the temperature remains stationary or rises for a short time after death. However, cooling soon occurs and usually the body temperature drops several degrees Fahrenheit each hour for the first 8 or 10 hours after death, except in the tropics or under circumstances where the room temperature approaches body temperature (98.6°F or 37°C). The rate of fall depends upon the temperature at the time of death, the amount of fatty tissue under the skin, the amount of clothing worn, and weather conditions.

• *Rigor mortis*—A stiffening of the muscles and rigidity of the body, usually appears within two to eight hours after death, and lasts 16 to 24 hours. However, the onset of rigor mortis and its duration are subject to wide variation. Rigor mortis, usually begins in the facial muscles, extends gradually to the legs, and disappears in the same order.

Care must be taken not to confuse rigor mortis with the muscular spasm and rigidity that sometimes occurs almost immediately after an electric shock or in some cases of poisoning. Early rigidity is not a reason for discontinuing artificial respiration or other attempts at resuscitation.

• *Postmortem lividity*—The skin upon which the body rests—usually at the buttocks, back, and shoulders—gradually becomes discolored several hours after death. This discoloration is due to the settling of blood into the lowest parts of the body as it lies in one position. These purplish or reddish-violet spots are known as "death spots," corpse lividity, postmortem lividity, or cadaveric lividity.

These spots, sometimes mistaken for bruises, usually can be distinguished from bruises in two ways: (1) *lividity spots* would not have been present before death and (2) *bruises* will show considerable blood or perhaps a clot, while the lividity spots will not. Lividity spots provide a sure sign of death.

• *Putrefaction* (rotting, decomposition)—This is absolute proof of death. Putrefaction occurs after rigor mortis has disappeared. Ordinarily its onset is not apparent for at least one day after death; and it may be delayed for several days, depending upon such circumstances as the cause of death, and whether in a cold or in a hot moist climate.

Care of the Body After Death

Ship's officers are not expected to embalm a body. The following outline is not concerned with the preservation of a body after death; only its general care.

In the presence of a corpse, everyone should be respectful, quiet, orderly, and subdued. There should be no attempt at humor; such efforts usually indicate an embarrassed covering up of kinder emotions which would be better to express. The behavior of the medical attendant can do much to preserve a proper atmosphere in the death room. It should be remembered that the death of a member of the crew may be very depressing to the rest of the ship's company. They should not see the body until it is properly laid-out and prepared for burial.

When rigor mortis occurs within a few hours after death, it becomes difficult to make adjustments to the positions of the limbs. As soon as death has been pronounced, it is essential that the body be placed in the conventional position for burial. The body should be placed on its back, with the legs straightened and the knees held together with a loosely knotted bandage. The arms should be positioned along the sides, with the elbows bent and the forearms carried across the abdomen so that the hands will meet. The wrists should be secured in this position by a loosely knotted bandage.

The head should be elevated slightly by means of a pad. The eyelids should be closed. At times they will not stay closed, and it will be necessary to place a piece of damp cotton on top of the lids. If this will not keep them closed, the lids should be lifted up, and a very small wisp of cotton inserted under the upper eyelids. Then the lid should be closed over the cotton. One should be sure that the cotton is not thick enough to disfigure the eyelids' appearance and that none of the white cotton is visible after the lids are closed.

The mouth must be closed. If the deceased wore false teeth, they should be carefully placed in position so that the facial appearance is as normal as possible. The lower jaw usually sags before rigor mortis sets in; it should be supported by a folded towel or a broad bandage knotted over the top of the head. After a few hours, this bandage may be removed (before any of the crew members view the body).

Discharges may appear from body openings; the nostrils, mouth, penis, and anus; these openings should be plugged with cotton. Care must be taken to assure that the cotton plugs in the nostrils are not visible from the outside.

The face should be washed carefully and dried. The hair should be combed in the fashion used by the deceased when he was alive.

Usually, there is no question about the identification of a crewman's body, because members of the crew presumably were identified properly at the time of signing-on. However, for some legal reason, absolutely certain identification may be needed. Therefore, it is recommended that (1) fingerprints be taken; and (2) a careful, written description be made of the location, and exactly measured size of other peculiarities, as scars, tattoo marks, moles, and birthmarks. Fingerprints are made by pressing the palmar (front) side of the last joint of each finger, one after the other, on an inking stamp pad, and making the impression of the finger markings by pressing the inked surface of each finger onto a piece of paper. Each imprint should be identified by noting under it "left thumb," "left index finger," "left middle finger," and so on for all the fingers.

If the patient died of a contagious disease, the body (except for the face and head) should be carefully and completely wrapped in a sheet which has been previously dampened with phenolic disinfectant solution.

Disposition of the Body

If a decision is made *not* to bury at sea, the remains should be put into a *leakproof mortuary body transfer bag* and kept in a refrigerated area aboard ship. *The remains must not be frozen,* in order to keep it in good condition for possible viewing by relatives of the deceased, or for possible later medical-legal investigation.

Burial Arrangements

The Master will get in touch with the shipping company, which in turn will contact the next-of-kin for instructions on disposition of the remains. The company will relay these instructions back to the Master. It could be decided (1) to retain the remains aboard ship until arrival at a U.S. port; (2) send the remains to a mortuary in a foreign port; or (3) burial could be at sea. United States law is silent as to when there *must* be a burial at sea, or when the remains *must* be returned to port.

In some circumstances the laws of the country at the next port of entry will determine the disposition of the remains. Before entering a foreign port, the Master should *contact local health officials in advance.*

There may be occasions when the remains would be transported by air to the United States. This could happen when requested by next of kin, the vessel's owner, the deceased person's labor union, or any number of other possibilities that could influence the Master to decide on such a move.

Burial at Sea

Today burial at sea is the exception. If it is decided to conduct a burial at sea, the body should be encased from head to foot carefully and completely in a sheet, and then sewed tightly in canvas. A heavy weight should be enclosed in the canvas at the feet.

If the body is to be kept on board ship for a day or two, it should be washed and petroleum jelly applied to the face and hands. If possible, the body should be placed in cold storage.

All available information about the deceased, his family, his friends, and a complete history of his illness, a careful record of his words, such as messages, expressed wishes, and last statement, should be gathered together in a file for delivery to the proper shore authorities. His personal belongings should be gathered together, listed, placed in a sealed package, and stored in a safe place.

Burial Service for Ships Without a Chaplain

At the spot on the afterdeck where the burial is to be held, two sawhorses or similar supports should be placed about the height of the ship's railing. All the ship's company who are available for the ceremony should assemble at the place of burial. The flag-draped body of the deceased is then brought forth on a stretcher (or other similarly shaped flat surface) by four or six attendants (pallbearers), two or three on each side. The stretcher is placed on the supports, feet outboard. The attendants step back slightly but retain their relative position with regard to the stretcher. All uncover.

The ship's Master, or someone representing him, shall step forward and slowly and solemnly read a suitable prayer, as the following—*

* Because the following prayer has been highly regarded in past editions, it is presented again in this revised edition.

PRAYER

Out of the depth have I cried unto Thee, O Lord: Lord hear my voice.
Let Thine ears be attentive to the voice of my supplication.
If Thou, O Lord, wilt mark iniquities, Lord who shall stand it?
For with Thee there is merciful forgiveness; and by reason of Thy law, have I waited for Thee, O Lord.
My soul hath hoped in the Lord.
From the morning watch even until night, let Israel hope in the Lord.
Because with the Lord there is mercy, and with Him plenteous redemption.
And He shall redeem Israel from all his iniquities.
Eternal rest grant unto him, O Lord, And Let perpetual light shine upon him.
Come to his assistance, ye Saints of God, Meet him, ye Angels of the Lord. Receive his soul, and present it to the Most High.
May Christ who called thee, receive thee; and may the Angels lead thee into the bosom of Abraham.
Eternal rest grant to him, O Lord, and let perpetual light shine upon him.

The Master, or his representative, may talk about the deceased for 3 to 5 minutes, highlighting things that made him an honorable man among men.

The Master or his representative then nods to the attendants at the bier; they grasp the flag with one hand and lift it slightly above the corpse. If necessary, the two attendants at the foot-end of the stretcher will lift that end so that it rests on the rail.

The two attendants at the head-end of the stretcher will tilt it up and permit the body to slide, feet foremost, into the sea. As the body is consigned to the deep, attendees stand in reverence.

When someone who is next of kin is present at the burial service, the flag can be folded neatly and presented to that person. If no next of kin are present, the flag may be placed temporarily with the effects of the deceased.

Family Notified

When the family is notified that the remains were committed to the deep, the Master should indicate the longitude and latitude where the event occurred. Also, the Master should find out if the next of kin wants the flag sent to the family with the personal effects of the deceased.